Preserving the fertility by cryopreserving semen specimen before chemotherapy, radiation therapy or surgery is a realistic option for cancer patients. Higher level of lipid peroxidation can adversely affect semen quality in men with male factor infertility. Although the pre-freeze and post-thaw semen quality in cancer patients is poor, it is not clear if lipid peroxidation (LPO) affects the semen quality. The purpose of the study was 1) to compare lipid peroxidation levels in cryopreserved semen specimens from cancer patients and normal healthy men, and 2) to determine if sperm characteristics correlate with levels of LPO. Cryopreserved semen specimen from patients with testicular (n = 15), non-testicular cancer (n = 16) and normal men (n = 20) were thawed at room temperature for 5 minutes and 20 minutes in a CO₂ incubator at 37°C. Post-thaw sperm motility was assessed and the sperm concentration adjusted to 20X10⁶/mL. Thiobarbituric acid assay was used to determine LPO levels in the presence of a ferrous : ascorbate promoter system. No significant difference in LPO levels was seen between testicular (25.9 ± 3.9 nM MDA/10⁸ sperm/hr), non-testicular cancer patients (24.5 ± 6.6 nM MDA/10⁸ sperm/hr) and normal men (24.9 ± 6.4 nM MDA/10⁸ sperm/hr). Post-thaw motility showed poor correlation with LPO levels. The poor post-thaw semen quality seen in testicular and non-testicular cancer patients may not be related to LPO levels but may be the result of cell damage associated with cryopreservation and freeze-thaw.